

2.4 More Factoring:Binomial Common Factoring:

Ex 1: Factor $4x(3x-2) + 5(3x-2)$

$$= (4x+5)(3x-2)$$

Ex 2: Factor $7x(x+8) + (x+8)$

$$(7x+1)(x+8)$$

Can't see but
there is a 1

Factor by Grouping:

$$ac + bc + ad + bd$$

$$c(a+b) + d(a+b)$$

$$(c+d)(a+b)$$

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Now you try:

Factor

a) $7x(m+4) - 3(m+4)$

$$= (7x-3)(m+4)$$

b) $3x(x-2) - (x-2)$

$$= (3x-1)(x-2)$$

c) $wx + wy + xz + yz$

$$= w(x+y) + z(x+y)$$

$$= (w+z)(x+y)$$

d) $x^2 + 4x - 3x - 12$

$$= x(x+4) - 3(x+4)$$

$$= (x-3)(x+4)$$

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Find The Numbers:

$$x^2 + \#x + \#$$

$$x^2 - \#x + \#$$

Product	Sum	#'s
2	3	2 1
18	9	6 3
6	5	3 2
15	8	3 5
100	20	10 10
16	-10	-8 -2
36	-12	-6 -6
60	-16	-10 -6
144	-24	-12 -12
42	-13	-7 -6
56	-15	-8 -7
-12	-11	-12 +1
-30	-1	-6 +5
-10	3	+5 -2
-24	5	8 -3
-30	1	-5 +6

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Factoring by Decomposition

Ex 1: Factor

$$2x^2 + 11x + 12$$

Find two Numbers that
Multiply to +24
AND
Add to +11

$$= 2x^2 + 8x + 3x + 12$$

$$= 2x^2 + 8x + 3x + 12$$

$$= 2x(x+4) + 3(x+4)$$

$$= (2x+3)(x+4)$$

Ex 2: Factor

$$6x^2 + 13x - 5$$

Decompose (break down)
middle term using your Numbers

Factor by grouping

Binomial CF

$$= 6x^2 + 15x - 2x - 5$$

$$= 3x(2x+5) - 1(2x+5)$$

$$= (3x-1)(2x+5)$$

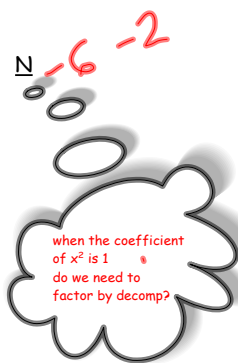
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Ex 3: Factor

$$x^2 - 8x + 12$$

$$\begin{aligned}
 &= x^2 - 6x - 2x + 12 \\
 &= x(x-6) - 2(x-6) \\
 &= (x-2)(x-6)
 \end{aligned}$$

M	A	N
12	-8	



Ex 4: Factor Fully

$$2x^2 + 18x + 36$$

$$\begin{aligned}
 &= 2(x^2 + 9x + 18) \quad \begin{array}{l} 18 \\ +9 \\ +6 \\ +3 \end{array} \\
 &= 2[x^2 + 6x + 3x + 18] \quad \swarrow = 2(x^2 + 9x + 18) \\
 &= 2[x(x+6) + 3(x+6)] = 2(x+6)(x+3) \\
 &= 2(x+3)(x+6)
 \end{aligned}$$

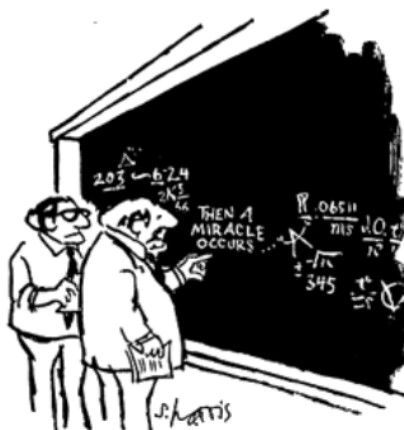
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HMWK

p 110 # 5

p 100 # 6

p 110 # 6, 7, 9



"I think you should be more explicit here in step two."

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